U.S. Department
of Transportation
**Federal Aviation
Administration**

SDR Summary

Service Difficulty Reporting

October 05, 1997 - October 11, 1997

GENERAL AVIATION, ZAC-327

You can improve Air Safety by reporting the problem when you see it!

SECTION

ISSUE 97-41

U.S. Department of Transportation
Federal Aviation Administration

SDR SUMMARY

General Aviation, ZAC-327

This summary includes domestic (United States) Service Difficulty Reports (SDRs) entered into the data base for aircraft weighing 12,500 lbs. and below. It also includes reports on aeronautical products (engines, propellers, and components), and all helicopters. A separate section for International SDRs for aircraft weighing 12,500 lbs. and under has also been included. Under a data exchange agreement, International SDRs are submitted to the FAA by the Civil Aviation Authority of other countries (currently, Canada - CAN, and Australia - AUS). All reports are sorted by aircraft make, model group (basic model), and Joint Aircraft System/Component (JASC) code. Within each aircraft model group, the specific model shown may vary, but similar types of reports will be grouped together and listed in ascending order by their JASC code. Each field contains all information submitted to the FAA. Some fields are not included in order to make the summary easier to read. Additional information may be obtained by referring to the "operator control number." Send your request to the Aviation Data Systems Branch, AFS-620 at the address or phone below.

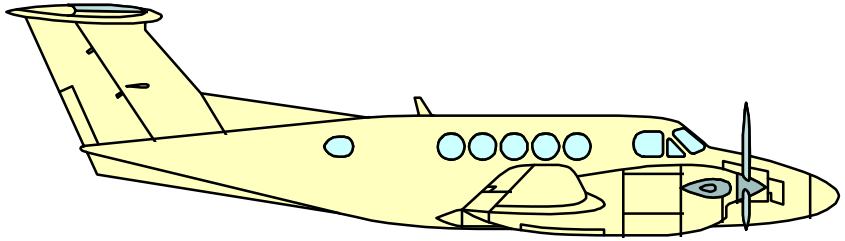
"The Service Difficulty Reports in this publication are derived from unverified information submitted by the aviation community without FAA verification for accuracy. The number of SDRs submitted is not an indication of the mechanical reliability or fitness of an airline or individual operator, and the information should not be used as such."

Comments are welcomed and may be directed to:

Federal Aviation Administration
Aviation Data Systems Branch, AFS-620
P.O. Box 25082
Oklahoma City, OK 73125-5029
Phone: (405) 954-4171, Fax: (405) 954-4748

Your continued participation is essential and is an integral part of ensuring aviation safety. Thank you for supporting the Service Difficulty Program! If you have any questions regarding this special notice you can contact John Jackson at (405) 954-6486, or Jim Gillespie at (405) 954-1141, or Blake McDonald at (405) 954-0307 in the Aviation Systems Branch (AFS-620). Their E-mail addresses are:

john_e_jackson@mmacmail.jccbi.gov **james_gillespie@mmacmail.jccbi.gov** **blake_mcdonald@mmacmail.jccbi.gov**



SIGNIFICANT OCCURRENCE REPORT

U.S. Department
of Transportation
Federal Aviation Administration

THE SIGNIFICANT OCCURRENCE REPORT

The Significant Occurrence Report is a compilation all of the star bordered reports that appear in the General Aviation Service Difficulty Report (SDR) Summary, ZAC-327. The Significant Occurrence Report is used to highlight industry problem areas to field inspectors and the aviation public.

Limited analysis is performed by the Aviation Data Systems Branch, AFS-620 during the preparation of the "Significant Occurrence Report", which is generated each week and is included in the front of the Air Carrier SDR Summary. Significant Reports are hand selected by AFS-620's inspectors based on the individual merit of each report. The criteria for selection includes, but is not limited to, items that indicate high failure rates; items related to accidents or incidents; or design or maintenance failures which may affect the safe operation of the aircraft.

In some cases, this limited analysis of SDR data leads to the preparation of information bulletins which are routed to the appropriate product certification office for further investigation of the problem. The end result may be the issuance of an airworthiness directive (AD) by the Aircraft Certification Service (AIR) if warranted.

The Significant Occurrence Report (section I) of the weekly SDR Summary is not intended to be a summary of all significant events and should not be used as such. We recommend that you review further the applicable sections of the SDR summary that may be of interest.

SIGNIFICANT OCCURRENCE REPORT

ATA / OPER	REG. NO / SERIAL NO	ACFT MAKE / ACFT MODEL	ENG MAKE / ENG MDL	PROP MAKE / PROP MDL	COMP MFG / COMP MDL	PART NAME / PART NUMBER	PART COND / PART LOC.	TT / TSO	DIFF. DATE / OPER CONT NO
2810	8251B	AMTR				VENT	PLUGGED		9/16/97
	1194142	RANSS7					FUEL TANK		97ZZZX4247
	ON APPROACH, THE ENGINE QUIT CAUSING THE PILOT TO LAND SHORT OF RUNWAY. THE AIRCRAFT RECEIVED DAMAGE TO THE LT MLG, PROPELLER, AND RT WING. INVESTIGATION REVEALED THE LT FUEL TANK WAS EMPTY AND THE RT TANK WAS NEARLY FULL. THE CARBURETOR BOWLS WERE EMPTY. BY BACK-BLOWING FROM THE FUEL PUMP LINE, THE RT FUEL TANK WAS PRESSURIZED. UNABLE TO BLOW BACK THROUGH VENT. BUILDER STATED WHEN INSTALLING VENT, HE FOUND IT TO BE BLOCKED AND HAD TO BE RE-DRILLED. PROBLEM COULD BE WITH VENT AS RECEIVED OR MAY HAVE BECOME PLUGGED DURING INSTALLATION. SUGGEST VENT SYSTEM BE TESTED FOR PROPER OPERATION.								
3213	102KM	AMTRDF				GEAR LEG	FAILED	178	9/23/97
	1702	KITFOX					LT MLG		97ZZZX4249
	AFTER AIRCRAFT LANDED ON RUNWAY AND PROCEEDED TO THE TAXIWAY. THE LEFT LANDING GEAR FAILED AT WELD AREA.								
5711	2009X	BEECH				BOLTS	LOOSE	1486	9/8/97
	ME66	76				NAS464P5	WING CENTER		97ZZZX4250
	DURING 100-HOUR INSPECTION, THE CENTER SECTION WING BOLTS THAT ATTACH THE LOWER WING SPAR PLATE TO THE WING SPAR (I.E., 20 WING BOLTS) WERE ALL FOUND UNDERTORQUED BY ONE-HALF TO ONE FULL TURN. THE NAS464P5 BOLTS SHOULD BE TORQUED 100-140 INCH/POUND.								
2133	22BM	BEECH			AIRESRCH	OUTFLOW VALVE	FAILED	6290	4/28/97
	LJ360	C90				1036481	CABIN		97ZZZX4284
	AFTER TAKEOFF, CABIN PRESSURIZATION STARTED TO PRESSURIZE TO 6,000 FEET CLIMB UNTIL THE SAFETY VALVE OPENED, THE CABIN WENT TO A 6,000 FOOT DESCENT. THE CABIN CONTINUED TO OSCILLATE IN THIS MANNER UNTIL PILOT DUMPED THE CABIN AND CONTINUED UNPRESSURIZED. ON TEST FLIGHT, MECHANIC FOUND VALVE RETAINER PLUG BLOCKING OUTLET CAUSING PRESSURIZATION FLUCTUATION. DEFECT IS COVERED IN BEECH SL (SL 1162 AND SL 1109) AND AIRESEARCH 5-2243, BUT DOES NOT COVER PART NUMBER OR SERIAL NUMBER OF DEFECTIVE VALVE. THIS COULD CAUSE A SERIOUS PROBLEM IF THERE IS AN UNKNOWN SAFETY VALVE DEFECT.								
2730	7TD	BEECH				CABLE	BROKEN	2754	9/18/97
DBCR	LW276	E90				5052443931	ELEVATOR CONTROI		97ZZZX4298
	FOLLOWING TAKEOFF, AIRCRAFT RETURNED DUE TO ELEVATOR MALFUNCTION. INSPECTION FOUND ELEVATOR CABLE BROKEN DUE TO CHAFE ON A CLAMP ON THE BLEED AIR LINE. EMERGENCY GEAR HANDLE FORCES BLEED LINE DOWNWARD ON TO ELEVATOR CABLE. SUGGEST RE-ROUTE BLEED LINE.								
2823	40EA	BELL				SWITCH	FAILED	1586	9/5/97
	47061	222				10648BH11	FUEL SOV		97ZZZX4316
	FUEL VALVE SWITCH VIBRATED LOOSE DURING FLIGHT CAUSING FUEL VALVE TO CLOSE AND ENGINE TO SHUT DOWN DUE TO FUEL STARVATION. SUSPECTED CAUSE OF FAILURE MECHANICAL LOCKING (INTERNAL). SUBMITTER RECOMMENDS REPLACEMENT OF SWITCH FOLLOWING 7,500 CYCLES OF SWITCH OPERATION. CYCLES BASED ON 2 ENGINE STARTS PER HOUR, 4 SWITCH OPERATIONS PLUS 1,500 OPERATIONS FOR MAINTENANCE WORK AND GROUND RUNS, ETC.								
2710	13378	CESSNA				CABLE	FRAYED	4101	9/1/97
ESMR	17262714	172M				0510105224	LT AILERON		97ZZZX4270
	LEFT PRIMARY AILERON CABLE WAS FOUND FRAYED DURING ROUTINE INSPECTION. SEVERAL HARD TO SEE AREAS OF CABLE WERE FRAYED (TOTAL TIME ON CABLE 4,101.1 HOURS. SUBMITTER RECOMMENDED CABLES BE REPLACED ON A TIME CHANGE BASIS, CABLE PN 0510105-224.								

ATA / OPER	REG. NO / SERIAL NO	ACFT MAKE / ACFT MODEL	ENG MAKE / ENG MDL	PROP MAKE / PROP MDL	COMP MFG / COMP MDL	PART NAME / PART NUMBER	PART COND / PART LOC.	TT / TSO	DIFF. DATE / OPER CONT NO
2701	344K	CESSNA				BEARING	FAILED	11956	9/9/97
Q2AR	18263709	182P				07606331	CONTROL COLUMN		97ZZZX4314

PILOT'S CONTROL COLUMN FORWARD SUPPORT ROLLER BEARING FAILED AND CAUSED AILERON CONTROL BINDING IN-FLIGHT.

7332	850FE	CESSNA	PWA			WIRE	CHAFED		9/6/97
COEA	208B0164	208B	PT6A114			QA23	INSTR PANEL		COEA9701850

FUEL PRESSUR LOW LIGHT ILLUMINATED IN FLIGHT FROM FLG TO PHX. LOUD NOISE IN ENGINE COMPARTMENT, COUPLED WITH ERRATIC FUEL FLOW INDICATING. USED EMERGENCY POWER LEVER FOR REMAINDER OF FLIGHT. AIRCRAFT DIVERTED TO PRESCOTT AND LANDED WITHOUT INCIDENT. TROUBLE SHOT SYSTEM AND FOUND QA23 WIRE FROM FUEL PUMP PRESSURE SWITCH CHAFED AND INTERMITTENTLY GROUNDING AT AFT END OF GLOVE BOX. INSTALLED AND ROUTED NEW WIRE. PERFORMED A SATISFACTORY GROUND RUN WITH NO DISCREPANCIES. AIRCRAFT RETURNED TO SERVICE. (M)

5340	2610Z	CESSNA				CHANNEL	CRACKED		9/16/97
BR0A	402C0068	402C				58130441	NLG		97ZZZX4251

DURING ROUTINE INSPECTION, TWO CHANNELS THAT SUPPORT THE NOSE LANDING GEAR ACTUATOR WERE FOUND CRACKED. AFTER REMOVING CHANNELS FOR REPLACEMENT, FORWARD SUPPORT ZEE P/N 5813045-1 WAS DISCOVERED CRACKED AND DAMAGED. AIRCRAFT HAD NO HISTORY OF PROBLEMS ASSOCIATED WITH THE LANDING GEAR. AIRCRAFT TOTAL TIME 11,250 HOURS. SUBMITTER RECOMMENDED CLOSE INSPECTION OF THIS AREA.

5610	56294	MAULE				WINDOW	RIVETS FAILED		9/9/97
	9001C	M5210TC					RT FRONT		97ZZZX4276

FRONT WINDOW RIVETS FAILED IN-FLIGHT LEADING TO TOTAL LOSS OF RT FRONT WINDOW FROM THE AIRCRAFT. TT: 902 HOURS.

6122	3984N	MOONE			SIGMATEK	GOVERNOR	FAULTY	1633	8/21/97
	680012	M20C				34828014	PROPELLER	300	97ZZZX4253

INSTALLED 3-BLADE PROPELLER IAW STC SA 4529NM. STC MAKES NO MENTION OF PROPELLER GOVERNOR. AFTER 3 HOURS OF OPERATION, PROPELLER BEGAN SURGING 100-200 RPM FROM 2,400 RPM. AFTER NUMEROUS TESTS, DETERMINED THE EDO AIRE (GARWIN) PROPELLER GOVERNOR CANNOT SUPPLY THE VOLUME OF OIL REQUIRED BY THIS PROPELLER. REMOVED THIS PROPELLER AND RETURNED TO THE ORIGINAL 2-BLADE HC-C2YK-1BF/F7666A PROPELLER. OPERATES NORMALLY AFTER 8 HOURS.

5711	94827	UNIVAR				SPAR CAP	CORRODED	2361	9/19/97
	4941	415E				41513102	RT WING		97ZZZX4257

SEVERE CORROSION ON LOWER CENTER SECTION SPAR CAP. CORROSION WAS FOUND AFTER RT WING WAS REMOVED FOR REPAIR DURING ANNUAL INSPECTION. CORROSION CANNOT BE DETECTED WITH WING INSTALLED. SUBMITTER RECOMMENDED PANEL BE INSTALLED ON BOTTOM SKIN PANEL TO CHECK FOR CORROSION.

FEDERAL AVIATION ADMINISTRATION

SIGNIFICANT OCCURRENCE REPORT INDEX

Showing Specific Part Numbers and Aircraft Model by Year

FOR THE PERIOD OF: OCTOBER 05, 1997 TO OCTOBER 11, 1997

PART NAME / PART NUMBER	ACFT MODEL	Total	YEAR 90	91	92	93	95	97
CABLE								
0510105224	172K	1	-	1	-	-	-	-
	172M	1	-	-	-	-	-	1
TOTAL		**2**		**1**				**1**
BEARING								
07606331	182P	1	-	-	-	-	-	1
	207	1	1	-	-	-	-	-
TOTAL		**2**	**1**					**1**
OUTFLOW VALVE								
1036481	C90	1	-	-	-	-	-	1
TOTAL		**1**						**1**
SWITCH								
10648BH11	222	1	-	-	-	-	-	1
	222U	1	-	-	-	-	-	1
TOTAL		**2**						**2**
GOVERNOR								
34828014	M20C	1	-	-	-	-	-	1
TOTAL		**1**						**1**
SPAR CAP								
41513102	415C	3	1	1	-	1	-	-
	415E	1	-	-	-	-	-	1
TOTAL		**4**	**1**	**1**		**1**		**1**
CABLE								
5052443931	E90	1	-	-	-	-	-	1

FEDERAL AVIATION ADMINISTRATION

SIGNIFICANT OCCURRENCE REPORT INDEX

Showing Specific Part Numbers and Aircraft Model by Year

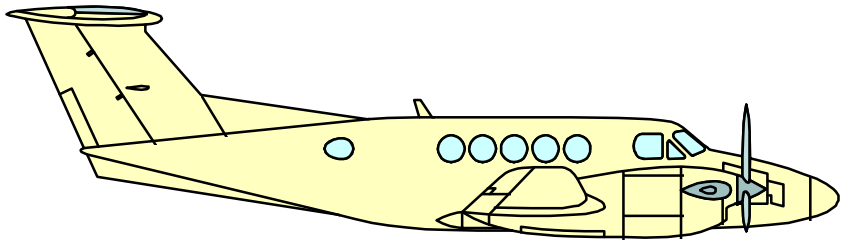
FOR THE PERIOD OF: OCTOBER 05, 1997 TO OCTOBER 11, 1997

PART NAME / PART NUMBER	ACFT MODEL	Total	YEAR 90	91	92	93	95	97
TOTAL		**1**						**1**
CHANNEL								
58130441	402C	11	2	1	5	1	1	1
	404CESSNA	1	-	-	-	-	-	1
TOTAL		**12**	**2**	**1**	**5**	**1**	**1**	**2**
BOLTS								
NAS464P5	76	1	-	-	-	-	-	1
	PA60600	1	-	1	-	-	-	-
TOTAL		**2**		**1**				**1**
WIRE								
QA23	208B	1	-	-	-	-	-	1
TOTAL		**1**						**1**

END OF REPORT

DOMESTIC

SERVICE DIFFICULTY REPORT



DOMESTIC SERVICE DIFFICULTY REPORT SUMMARY - AIRCRAFT

ATA / OPER	REG. NO / SERIAL NO	ACFT MAKE / ACFT MODEL	ENG MAKE / ENG MDL	PROP MAKE / PROP MDL	COMP MFG / COMP MDL	PART NAME / PART NUMBER	PART COND / PART LOC.	TT / TSO	DIFF. DATE / OPER CONT NO
2810	8251B	AMTR				VENT	PLUGGED		9/16/97
	1194142	RANSS7					FUEL TANK		97ZZZX4247
*****	ON APPROACH, THE ENGINE QUIT CAUSING THE PILOT TO LAND SHORT OF RUNWAY. THE AIRCRAFT RECEIVED DAMAGE TO THE LT MLG, PROPELLER, AND RT WING. INVESTIGATION REVEALED THE LT FUEL TANK WAS EMPTY AND THE RT TANK WAS NEARLY FULL. THE CARBURETOR BOWLS WERE EMPTY. BY BACK-BLOWING FROM THE FUEL PUMP LINE, THE RT FUEL TANK WAS PRESSURIZED. UNABLE TO BLOW BACK THROUGH VENT. BUILDER STATED WHEN INSTALLING VENT, HE FOUND IT TO BE BLOCKED AND HAD TO BE RE-DRILLED. PROBLEM COULD BE WITH VENT AS RECEIVED OR MAY HAVE BECOME PLUGGED DURING INSTALLATION. SUGGEST VENT SYSTEM BE TESTED FOR PROPER OPERATION.								
3213	102KM	AMTRDF				GEAR LEG	FAILED	178	9/23/97
	1702	KITFOX					LT MLG		97ZZZX4249
*****	AFTER AIRCRAFT LANDED ON RUNWAY AND PROCEEDED TO THE TAXIWAY. THE LEFT LANDING GEAR FAILED AT WELD AREA.								
5711	2009X	BEECH				BOLTS	LOOSE	1486	9/8/97
	ME66	76				NAS464P5	WING CENTER		97ZZZX4250
*****	DURING 100-HOUR INSPECTION, THE CENTER SECTION WING BOLTS THAT ATTACH THE LOWER WING SPAR PLATE TO THE WING SPAR (I.E., 20 WING BOLTS) WERE ALL FOUND UNDERTORQUED BY ONE-HALF TO ONE FULL TURN. THE NAS464P5 BOLTS SHOULD BE TORQUED 100-140 INCH/POUND.								
2133	22BM	BEECH			AIRESRCH	OUTFLOW VALVE	FAILED	6290	4/28/97
	LJ360	C90				1036481	CABIN		97ZZZX4284
*****	AFTER TAKEOFF, CABIN PRESSURIZATION STARTED TO PRESSURIZE TO 6,000 FEET CLIMB UNTIL THE SAFETY VALVE OPENED, THE CABIN WENT TO A 6,000 FOOT DESCENT. THE CABIN CONTINUED TO OSCILLATE IN THIS MANNER UNTIL PILOT DUMPED THE CABIN AND CONTINUED UNPRESSURIZED. ON TEST FLIGHT, MECHANIC FOUND VALVE RETAINER PLUG BLOCKING OUTLET CAUSING PRESSURIZATION FLUCTUATION. DEFECT IS COVERED IN BEECH SL (SL 1162 AND SL 1109) AND AIRESEARCH 5-2243, BUT DOES NOT COVER PART NUMBER OR SERIAL NUMBER OF DEFECTIVE VALVE. THIS COULD CAUSE A SERIOUS PROBLEM IF THERE IS AN UNKNOWN SAFETY VALVE DEFECT.								
2730	7TD	BEECH				CABLE	BROKEN	2754	9/18/97
DBCR	LW276	E90				5052443931	ELEVATOR CONTROI		97ZZZX4298
*****	FOLLOWING TAKEOFF, AIRCRAFT RETURNED DUE TO ELEVATOR MALFUNCTION. INSPECTION FOUND ELEVATOR CABLE BROKEN DUE TO CHAFE ON A CLAMP ON THE BLEED AIR LINE. EMERGENCY GEAR HANDLE FORCES BLEED LINE DOWNWARD ON TO ELEVATOR CABLE. SUGGEST RE-ROUTE BLEED LINE.								
2810	3700M	BEECH				FUEL CELL	LEAKING		8/26/97
	LW340	E90				929200203	LT NACELLE		97ZZZX4301
	UPON RETURN FROM A CHECK FLIGHT, THE LEFT NACELLE FUEL CELL STARTED LEAKING (MASSIVELY) JUST PRIOR TO ENGINE SHUT DOWN. WHEN THE FUEL SHUT OFF VALVES WERE SET TO THE OFF POSITION, FUEL CONTINUED TO LEAK. AN INVESTIGATION DISCLOSED THE LEFT NACELLE MAIN FUEL LINE NIPPLE HAD BECOME BRITTLE AND CRACKED AT THE BLADDER. DISCUSSIONS WITH BEECH CRAFT AND SEVERAL FUEL CELL REPAIR CENTERS INDICATED THAT NIPPLE MATERIAL COMPOSITION HAD BEEN CHANGED AFTER 1979 TO IMRPOVE ITS DURABILITY. SUBMITTER RECOMMENDED THAT ANY FUEL CELL OVER 15 YEARS OLD BE A CANDIDATE FOR REPLACEMENT OF THE OPERATOR'S CONVENIENCE.								
2460	360ES	CESSNA			LAMAR	J BOX	FAILED	266	7/29/97
	17280010	172RG				M0012	FIRE WALL		97ZZZX4252
	IN-FLIGHT ELECTRIAL FAILURE OF ALL ELECTRICAL EQUIPMENT BEING SERVICED BY BUS NR 1. PILOT COMMENTED SPARKS COMING FROM UNDERNEATH INSTRUMENT PANEL. NO BREAKERS TRIPPED. FOUND WIRE BUNDLE RESTING ON CIRCUIT BREAKER. WIRE BURNED OUT LAYING ACROSS WARNING BREAKER (WIRE NR BP1307) MECHANICALLY INSTALLED LUG CONNECTORS TO BUS NR 1, BUS NR 2, BUT SPLICE ABOVE WIRE.								

******* DENOTES SIGNIFICANT OCCURRENCE**

ATA	REG. NO	ACFT MAKE	ENG MAKE	PROP MAKE	COMP MFG	PART NAME	PART COND	TT	DIFF. DATE
OPER	SERIAL NO	ACFT MODEL	ENG MDL	PROP MDL	COMP MDL	PART NUMBER	PART LOC.	TSO	OPER CONT NO
2710	13378	CESSNA				CABLE	FRAYED	4101	9/1/97
ESMR	17262714	172M				0510105224	LT AILERON		97ZZZX4270
*****	LEFT PRIMARY AILERON CABLE WAS FOUND FRAYED DURING ROUTINE INSPECTION. SEVERAL HARD TO SEE AREAS OF CABLE WERE FRAYED (TOTAL TIME ON CABLE 4,101.1 HOURS. SUBMITTER RECOMMENDED CABLES BE REPLACED ON A TIME CHANGE BASIS, CABLE PN 0510105-224.								
3340	20402	CESSNA				LANDING LIGHT	DETERIORATED	59	9/17/97
	17261261	172M				GE4522	BULB		97ZZZX4272
	LANDING LIGHT REPLACED FOR BROKEN ELEMENT. THIS LAMP, AS WELL AS THE 4509 AND THE 4596, HAVE DETERIORATED TO THE POINT THE AVERAGE LIFE IS 50 HOURS TACH TIME.								
2701	344K	CESSNA				BEARING	FAILED	11956	9/9/97
Q2AR	18263709	182P				07606331	CONTROL COLUMN		97ZZZX4314
*****	PILOT'S CONTROL COLUMN FORWARD SUPPORT ROLLER BEARING FAILED AND CAUSED AILERON CONTROL BINDING IN-FLIGHT.								
2810	8433Q	CESSNA				FUEL CELL	LEAKING		9/22/97
	U20603292	U206F				303012	FITTINGS		97ZZZX4275
	FUEL CELL IS AN FAA/PMA REPLACEMENT FOR CESSNA PN 1200065-12. THE CONDITION AT REMOVAL WAS -- PERISHED. THE FITTINGS DISINTEGRATED. THE TANK ITSELF WAS IN OK CONDITION, BUT ALL THE PARTS THAT WERE SUPPOSED TO BE BONDED TO THE TANK JUST PULLED OFF LIKE THE BONDING WAS NOT CORRECTLY DONE. THIS TANK WAS MAINTAINED FULL AT ALL TIMES AND REFILLED AFTER FLIGHT. FUEL CELL MANUFACTURED BY A.I.R. OF MEMPHIS, TN. DATE OF MANUFACTURE: 9/90. CONSTRUCTION NR: P2315.								
2810	8433Q	CESSNA				FUEL CELL	LEAKING		9/22/97
	U20603292	U206F				303013	FITTINGS		97ZZZX4274
	FUEL CELL IS AN FAA/PMA REPLACEMENT FOR CESSNA PN 1200065-13. THE CONDITION AT REMOVAL WAS -- PERISHED. THE FITTINGS DISINTEGRATED. THE TANK ITSELF WAS IN OK CONDITION, BUT ALL THE PARTS THAT WERE SUPPOSED TO BE BONDED TO THE TANK JUST PULLED OFF LIKE THE BONDING WAS NOT CORRECTLY DONE. THIS TANK WAS MAINTAINED FULL AT ALL TIMES AND REFILLED AFTER FLIGHT. FUEL CELL MANUFACTED BY: A.I.R., MEMPHIS, TN. DATE OF MANUFACTURE: 3/90. CONSTRUCTION NR: P2315.								
7332	850FE	CESSNA	PWA			WIRE	CHAFED		9/6/97
COEA	208B0164	208B	PT6A114			QA23	INSTR PANEL		COEA9701850
*****	FUEL PRESSUR LOW LIGHT ILLUMINATED IN FLIGHT FROM FLG TO PHX. LOUD NOISE IN ENGINE COMPARTMENT, COUPLED WITH ERRATIC FUEL FLOW INDICATING. USED EMERGENCY POWER LEVER FOR REMAINDER OF FLIGHT. AIRCRAFT DIVERTED TO PRESCOTT AND LANDED WITHOUT INCIDENT. TROUBLE SHOT SYSTEM AND FOUND QA23 WIRE FROM FUEL PUMP PRESSURE SWITCH CHAFED AND INTERMITTENTLY GROUNDING AT AFT END OF GLOVE BOX. INSTALLED AND ROUTED NEW WIRE. PERFORMED A SATISFACTORY GROUND RUN WITH NO DISCREPANCIES. AIRCRAFT RETURNED TO SERVICE. (M)								
5340	2610Z	CESSNA				CHANNEL	CRACKED		9/16/97
BR0A	402C0068	402C				58130441	NLG		97ZZZX4251
*****	DURING ROUTINE INSPECTION, TWO CHANNELS THAT SUPPORT THE NOSE LANDING GEAR ACTUATOR WERE FOUND CRACKED. AFTER REMOVING CHANNELS FOR REPLACEMENT, FORWARD SUPPORT ZEE P/N 5813045-1 WAS DISCOVERED CRACKED AND DAMAGED. AIRCRAFT HAD NO HISTORY OF PROBLEMS ASSOCIATED WITH THE LANDING GEAR. AIRCRAFT TOTAL TIME 11,250 HOURS. SUBMITTER RECOMMENDED CLOSE INSPECTION OF THIS AREA.								

ATA / OPER	REG. NO / SERIAL NO	ACFT MAKE / ACFT MODEL	ENG MAKE / ENG MDL	PROP MAKE / PROP MDL	COMP MFG / COMP MDL	PART NAME / PART NUMBER	PART COND / PART LOC.	TT / TSO	DIFF. DATE / OPER CONT NO
5720	767EA	CESSNA				BULKHEAD	CRACKED	8441	9/22/97
OEZA	402B1244	402B				082340063	TIP TANK RT AFT		97ZZZX4264
	FOUND BULKHEAD CRACKED. SUBMITTER STATED MOST LIKELY FROM FATIGUE. CRACK STARTED IN COMPOUND BEND AND HAD NOT YET MADE IT TO THE EDGE. SUBMITTER STATED THE BULKHEAD IS MADE OF TOO LIGHT OF MATERIAL AND SUGGESTS CESSNA MAKE A REPLACEMENT BULKHEAD OUT OF HEAVIER MATERIAL.								
2750	444BC	CESSNA				CABLE	BROKEN		9/18/97
DBCR	414A0340	414A				500000863CR	RT FLAP		97ZZZX4255
	PILOT REPORTED LOUD BANG WHEN FLAPS SELECTED DOWN. LEFT FLAP JAMMED AND RIGHT FLAP WAS UNCONTROLLABLE. PILOT MANAGED A SAFE LANDING. INSPECTION REVEALED THE RIGHT FLAP EXTEND CABLE HAD BROKEN WHERE THE CABLE WRAPS AROUND THE FIRST SET OF PULLEYS OUTBOARD OF THE ACTUATOR. ALSO, THE TURNBUCKLE AND CABLE TERMINAL ENDS JAMMED THE ACTUATOR RENDERING IT INOPERABLE. THE AREA WHERE THE CABLE SEPARATED IS VERY DIFFICULT TO ACCESS.								
2710	4614N	CESSNA				CABLE	MISMANUFACTURED		9/4/97
	5500659	550				1455077645	AILERON		97ZZZX4290
	DURING SCHEDULED CABLE INSPECTION, THE AILERON CABALE WHICH RUNS THROUGH THE FUSELAGE WAS FOUND TO HAVE BROKEN STRANDS. UPON RECEIPT OF THE NEW CABLE, FOUND THE TERMINAL END WAS INCORRECT (CLEVIS TYPE INSTEAD OF 'EYE' TYPE). THE MANUFACTURER WAS CONTACTED AND STATED 4 OTHER CABLES WERE FOUND IMPROPERLY MANUFACTURED.								
2752	800LA	CESSNA				GEARBOX	SHAFT SHEARED	107	9/1/97
	5500295	550				556517538	FLAP		97ZZZX4297
	DRIVE GEAR SHEARED AT NARROW PORTION OF GEAR. THIS IS UPDATED MODEL THAT IS SUPPOSED TO PREVENT SHEARING SHAFT IN THIS LOCATION.								
5720	6034U	CHILD				CORD	FAILED	350	9/1/97
SPDR	5133	S2BPITTS					RIB LACE		97ZZZX4306
	DURING INSP, LOOSE FABRIC WAS FOUND ON TOP RT INBD SECT OF TOP WING (NO FABRIC TORN). SUCTION CUP WAS ABLE TO LIFT FABRIC FROM WING RIBS, BOTH TOP AND BOTTOM. A FABRIC PUNCH TEST WAS COMPLETED AND FOUND FABRIC OK. UNDER SUPERVISION OF THE FAA, TOP WING FABRIC WAS DISSECTED IN LOOSE AREA AND FOUND RIB LACING CORD HAD BROKEN ALLOWING FABRIC TO LIFT FROM THE RIBS. A PULL TEST OF THE RIB LACING CORD REVEALED THE CORD ONLY PULLED 25 TO 30 POUNDS BEFORE BREAKING. RIB LACING CORD WAS WAXED COTTON CORD. THE COMPLETE ACFT WAS COVERED USING GRADE 'A' COTTON, BUT STILL TESTED IN THE ORANGE USING A SEYBOTH NR 3 FABRIC TESTER AND A MAULE TESTER. LOG ENTRIES IN ACFT LOGS SHOWED SB NR 18 HAD BEEN C/W ANNUALLY.								
2120	9WA	CONAER				HOSE	OMITTED		9/18/97
	520	LA4200					ALTERNATOR		97ZZZX4258
	THE 2-6050-27 HOSE CONNECTS THE ALTERNATOR COOLING PORT TO THE FLEXIBLE DUCT (SCAT HOSE) THAT BRINGS AIR FROM ABOVE ENGINE TO THE ALTERNATOR. THIS NON-CONDUCTIVE HOSE HAD BEEN OMITTED (AFTER ENGINE CHANGE) WHICH ALLOWED THE WIRE IN THE FLEX DUCT TO CHAFE ON AND MAKE CONTACT WITH THE ALTERNATOR FIELD TERMINAL CAUSING ALTERNATOR/REGULATOR FAILURE.								
5312	332CH	DIAMON				BONDING	CRACKED	904	9/11/97
	10032	DA20A1					TAILCONE BLKHD		97ZZZX4261
	DURING A PRE-PURCHASE INSPECTION, A CRACK WAS NOTICED IN THE BONDING PASTE (THICKENED RESIN) ATTACHING THE AFT BULKHEAD TO THE TAIL CONE AT THE LOWER LEFT CORNER. THE CRACK IS 2.25 INCHES LONG. THE MANUFACTURER STATED THIS TYPE OF CRACK OCCURS FROM STRIKING THE TAIL ON THE GROUND (OVER ROTATING) ON TAKEOFF. SUBMITTER RECOMMENDED INSTALLING A SHOCK ABSORBING MATERIAL ONTO THE TAIL SKID IN PLACE OF THE NYLON ABRASION STRIP.								

******* DENOTES SIGNIFICANT OCCURRENCE**

ATA / OPER	REG. NO / SERIAL NO	ACFT MAKE / ACFT MODEL	ENG MAKE / ENG MDL	PROP MAKE / PROP MDL	COMP MFG / COMP MDL	PART NAME / PART NUMBER	PART COND / PART LOC.	TT / TSO	DIFF. DATE / OPER CONT NO
5610	56294	MAULE				WINDOW	RIVETS FAILED		9/9/97
	9001C	M5210TC					RT FRONT		97ZZZX4276
*****	FRONT WINDOW RIVETS FAILED IN-FLIGHT LEADING TO TOTAL LOSS OF RT FRONT WINDOW FROM THE AIRCRAFT. TT: 902 HOURS.								
3260	7667P	PIPER				MOUNT	DISPLACED	3121	8/1/97
	242880	PA24180					GEAR WARN SWITCH		97ZZZX4263
	AIRCRAFT WAS LANDED GEAR-UP ON GRASS RUNWAY. PILOT STATED HE HEARD NO WARNING HORN. WHEN LIFTED AIRCRAFT TO LOWER GEAR, HORN CHECKED INOPERABLE. CLOSER LOOK SHOWED THE SWITCH MOUNT ON THROTTLE HAD BEEN PUSHED AWAY FROM A SHAFT NOT ALLOWING SWITCH TO OPERATE. ALSO, SWITCH WAS ADJUSTED TO MAXIMUM POSITION AWAY FROM THROTTLE ROD. THE SWITCH MOUNT LOOKED LIKE IT WAS MOVED FROM CONTACT WITH WIRE BUNDLE ROUTED ABOVE SWITCH. RECOMMEND CHECK CLEARANCE BETWEEN SWITCH MOUNT AND ANYTHING ROUTED NEARBY.								
5720	8079Y	PIPER				DOUBLER	CRACKED	6547	9/22/97
	288016049	PA28161				6206102	WING WALK		97ZZZX4273
	THE WING WALK SKIN WAS FOUND TO SAG WHEN STEPPED ON. INVESTIGATION REVEALED THE REINFORCEMENT DOUBLER RIVETED TO THE UNDERSIDE OF THE WING WALK SKIN WAS CRACKED ALL ALONG THE BUTT RIB AREA.								
2820	41879	PIPER			AEROQUIP	HOSE	LEAK	2218	9/5/97
Q2AR	317712069	PA31325				6010008	FUEL SYSTEM		97ZZZX4313
	DURING ANNUAL INSPECTION, FUEL HOSES AT FUEL SELECTOR AND STRAINERS WERE MOVED FOR INSPECTION FOR HARDNESS. ALL FUEL HOSES BEGAN TO LEAK FUEL THROUGH EXTERIOR BRAID AFTER BEING DISTURBED. NEW HOSES CONFORMING TO MIL-H-879U INSTALLED. ORIGINAL HOSES MANUFACTURED 2 QTR 1974.								
3245	7235L	PIPER			PARKERHAN	TUBE	PUNCTURED		9/2/97
LECA	31357	PA31310			40140	600X6	NLG		97ZZZX4319
	NOSE TIRE WENT FLAT UPON ROLL-OUT AFTER LANDING. PILOT APPLIED BACK PRESSURE ON YOKE AND SLOWED AIRCRAFT TO A STOP ON THE RUNWAY. AIRCRAFT WAS TOWED TO A MAINTENANCE FACILITY. FOUND .1250 INCH HOLE IN SIDE OF THE TUBE. NOSE WHEEL REPLACEMENT AD HAD BEEN C/W 80 HOURS PRIOR. NO HARD LANDINGS WERE REPORTED.								
3244	160NA	PIPER			GOODYEAR	TIRE	FAILED	187	9/25/97
	31T7720060	PA31T				65010	LT/RT MLG		97ZZZX4271
	AFTER LANDING AND TAXI IN, NOTICED THE LT TIRE S/N 414622043304 HAD A BULGE ON THE INBOARD SIDE OF THE TREAD AND SIDE WALL AREA. THIS TIRE WAS REMOVED AND REPLACED WITH NEW. NEXT FLIGHT, RT TIRE S/N 41462322 LOST ITS TREAD ON INBOARD SIDE FULL CIRCUMFERENCE DURING TAKEOFF, BREAKING OFF THE RT INBOARD GEAR DOOR ACTUATOR BOTTOM FITTING. AS THE GEAR RETRACTED, HYDRAULIC FLUID FOR THE ENGINE DRIVEN PUMPS WAS DEPLETED, AND GEAR HAD TO BE HAND PUMPED DOWN USING EMERGENCY PROCEDURES. THE TIRE REMAINED PROPERLY INFLATED AND AN UNEVENTFUL LANDING WAS MADE. SUBMITTER STATED TIRES WITH S/N'S 41468XXX MAY BE A BAD BATCH. CAREFULLY INSPECT TIRES WITHIN THIS S/N RANGE.								
3246	62295	PIPER				WHEEL	CRACKED	2921	9/1/97
Q2AR	32R7680336	PA32R300				4090A	INBOARD HALF		97ZZZX4315
	INSPECTION FOUND INBOARD PORTION OF WHEEL HALF BEAD CRACKED ONE-THIRD WAY AROUND WHEEL CAUSING WHEEL TO CONTACT BRAKE CYLINDER.								
8120	722ET	PIPER	LYC			CLAMP	FAILED	295	9/9/97
	463047	PA46350P	TIO540AF2A			LW15592832	TURBOCHARGER		97ZZZX4286
	AT ALTITUDE, TURBOCHARGER FAILED DUE TO INTER COOLER CLAMP SEPARATION. THIS IS SECOND SET OF CLAMPS THAT HAVE SEPARATED. THE CRIMPED END HAS COME APART.								

******* DENOTES SIGNIFICANT OCCURRENCE**

ATA OPER	REG. NO SERIAL NO	ACFT MAKE ACFT MODEL	ENG MAKE ENG MDL	PROP MAKE PROP MDL	COMP MFG COMP MDL	PART NAME PART NUMBER	PART COND PART LOC.	TT TSO	DIFF. DATE OPER CONT NO
5711	94827	UNIVAR				SPAR CAP	CORRODED	2361	9/19/97
	4941	415E				41513102	RT WING		97ZZZX4257
*****	SEVERE CORROSION ON LOWER CENTER SECTION SPAR CAP. CORROSION WAS FOUND AFTER RT WING WAS REMOVED FOR REPAIR DURING ANNUAL INSPECTION. CORROSION CANNOT BE DETECTED WITH WING INSTALLED. SUBMITTER RECOMMENDED PANEL BE INSTALLED ON BOTTOM SKIN PANEL TO CHECK FOR CORROSION.								
5720	87114	UNIVAR				REINFORCEMENT	CORRODED	3938	8/1/97
	287	415C				14050R	RT WING		97ZZZX4302
	SEVERE CORROSION FOUND DURING ANNUAL. THIS OCCURED SINCE LAST ANNUAL JULY, 1996. CORROSION COULD NOT BE OBSERVED THROUGH INSPECTION HOLES IN WING. CAN ONLY BE SEEN WITH AILERON FULLY IN UP POSITION AND LOOKING UPWARD FROM THE GROUND. IT IS NOT READILY SEEN LOOKING DOWN THROUGH THE GAP BETWEEN WING AND AILERON. SUBMITTER RECOMMENDED OTHER OWNERS INSPECT BEFORE NEXT FLIGHT AND 3 TO 4 TIMES A YEAR THEREAFTER.								

DOMESTIC SERVICE DIFFICULTY REPORT SUMMARY - HELICOPTERS

ATA OPER	REG. NO SERIAL NO	ACFT MAKE ACFT MODEL	ENG MAKE ENG MDL	PROP MAKE PROP MDL	COMP MFG COMP MDL	PART NAME PART NUMBER	PART COND PART LOC.	TT TSO	DIFF. DATE OPER CONT NO
3416	109RX	AGUSTA				ALTIMETER	INOPERABLE	1496	3/14/97
R7MA	10016	A109K2				641110991	COCKPIT	1	R7MA0000232
	MODE 'C' IS INOPERABLE. TRANSPONDER READS DASH MARKS INSTEAD OF THE ALTITUDE. (X)								
3416	109RX	AGUSTA				ALTIMETER	INOPERABLE	1496	3/17/97
R7MA	10016	A109K2				641110991	COCKPIT		R7MA0000231
	MODE 'C' IS INOPERABLE. TRANSPONDER READS ONLY DASH MARKS INSTEAD OF THE ALTITUDE. (X)								
6240	2251Z	BELL				TACH GEN	WORN		9/30/97
HEEA	45756	206L1				206076373001	M/R		HEEA0011108
	TACH GEN WORN SHAFT COUPLING SPLINES.								
6310	3116P	BELL				SEAL	LEAK	34	9/30/97
HEEA	51530	206L3				206340105101	FREEWHEEL		HEEA0011112
	FREEWHEEL LEAKING. NOTE: ANOTHER SEAL WAS REMOVED FOR LEAKING WITH A TOTAL TIME OF 64:20 ON 7-16-97.								
5330		BELL				PANEL ASSY	MIS MFG		9/30/97
HEEA		212				212030065151A	FUSELAGE		HEEA0011110
	FORWARD EDGE OF PANEL 1/4" SHORT TO MAINTAIN CORRECT RIVET EDGE DISTANCE. ALL OTHER AREAS ARE CORRECT. PANEL IS JUST TOO SHORT ON FORWARD EDGE.								
7100	1079U	BELL				HARNESS	FAILED		9/30/97
HEEA	31122	212				3024340	ENGINE		HEEA0011102
	HARNESS BURNT PROBE TIP.								
2432	8045T	BELL				CHARGER	MALFUNCTION		9/30/97
HEEA	28101	214ST				214175379103	BATTERY		HEEA0011106
	BATTERY WILL NOT TOP CHARGE.								
6720	5748M	BELL				ACTUATOR ASSY	MALFUNCTION		9/30/97
HEEA	28102	214ST				214001540109	T/R CONTROL		HEEA0011105
	PITCH KICKS OFF ON LANDING AND TAKE OFF.								

******* DENOTES SIGNIFICANT OCCURRENCE**

ATA / OPER	REG. NO / SERIAL NO	ACFT MAKE / ACFT MODEL	ENG MAKE / ENG MDL	PROP MAKE / PROP MDL	COMP MFG / COMP MDL	PART NAME / PART NUMBER	PART COND / PART LOC.	TT / TSO	DIFF. DATE / OPER CONT NO
2823	40EA	BELL				SWITCH	FAILED	1586	9/5/97
	47061	222				10648BH11	FUEL SOV		97ZZZX4316
*****	FUEL VALVE SWITCH VIBRATED LOOSE DURING FLIGHT CAUSING FUEL VALVE TO CLOSE AND ENGINE TO SHUT DOWN DUE TO FUEL STARVATION. SUSPECTED CAUSE OF FAILURE MECHANICAL LOCKING (INTERNAL). SUBMITTER RECOMMENDS REPLACEMENT OF SWITCH FOLLOWING 7,500 CYCLES OF SWITCH OPERATION. CYCLES BASED ON 2 ENGINE STARTS PER HOUR, 4 SWITCH OPERATIONS PLUS 1,500 OPERATIONS FOR MAINTENANCE WORK AND GROUND RUNS, ETC.								
2211	7128R	BELL				COMPUTER	FAILED TEST		9/30/97
HEEA	36007	412				4025008918	AFCS		HEEA0011104
	FAILED TEST 13.2 AND 13.3 IN PITCH ON SST.								
2820	3893P	BELL				SWITCH	FAILED		8/21/97
HEEA	33012	412				72121000	FUEL SYS		HEEA0010857
	NO POWER TO AUX. FUEL SYSTEM. SWITCH FAILED.								
5260	3893N	BELL				ACTUATOR	FAILED		9/29/97
HEEA	33010	412				212075418105	STEP		HEEA0011097
	STEP ACTUATOR POPS CIRCUIT BREAKER.								
5260	107X	BELL				ACTUATOR	DEFECTIVE		9/29/97
HEEA	33113	412				212075418105	STEP		HEEA0011098
	STEP ACTUATOR POPS CIRCUIT BREAKER.								
5531		BELL				SPAR	DAMAGED		9/9/97
HEEA		412				204031826023	AFT FIN		HEEA0010986
	R/H SIDE OF SPAR 1/8" SHORTER THAN EXISTING SPAR. DAMAGE TOP L/H RADIUS AS MARKED IN RED.								
5531		BELL				SPAR	DAMAGED		9/9/97
HEEA		412				204031826023	AFT FIN		HEEA0010985
	R/H SIDE OF SPAR 1/8" SHORTER THAN EXISTING SPAR. DAMAGE TOP L/H RADIUS								
6320	HL923	BELL				INDICATOR	FAILED		9/30/97
HEEA	33150	412				212075036101	GR BOX OIL PRESS		HEEA0011111
	GR BOX OIL PRESS SIDE DOESN'T INDICATE.								

******* DENOTES SIGNIFICANT OCCURRENCE**

ATA OPER	REG. NO SERIAL NO	ACFT MAKE ACFT MODEL	ENG MAKE ENG MDL	PROP MAKE PROP MDL	COMP MFG COMP MDL	PART NAME PART NUMBER	PART COND PART LOC.	TT TSO	DIFF. DATE OPER CONT NO
6710	2149S	BELL				ACTUATOR ROTARY	FAILED		9/30/97
HEEA	36002	412				214001347005	M/R CONTROL		HEEA0011107
	ROTARY ACTUATOR WILL NOT MOTOR.								
7250	818SH	BOLKMS	ALLSN			1ST STG WHEEL	SULFIDATION	1088	9/29/97
HEEA	S753	BO105S	250C20B		6898735	6886407	TURBINE		HEEA0011099
	ENGINE REMOVED DUE TO LOW POWER. UPON INSPECTION OF TURBINE PARTS NOTED: MINOR SULPHIDATION ON ALL #1 WHEEL BLADES. SCRAPPED WHEEL.								
7931	5029H	BOLKMS				INDICATOR	READS HIGH		9/30/97
HEEA	S670	BO105S				10590873	TRIPLE OIL PRESS		HEEA0011109
	#1 ENGINE OIL PRESSURE READS HIGH OUT OF TOLERANCE.								

******* DENOTES SIGNIFICANT OCCURRENCE**

DOMESTIC SERVICE DIFFICULTY REPORT SUMMARY - ENGINES

ATA / OPER	REG. NO / SERIAL NO	ACFT MAKE / ACFT MODEL	ENG MAKE / ENG MDL	PROP MAKE / PROP MDL	COMP MFG / COMP MDL	PART NAME / PART NUMBER	PART COND / PART LOC.	TT / TSO	DIFF. DATE / OPER CONT NO
7250	818SH	BOLKMS	ALLSN			1ST STG WHEEL	SULFIDATION	1088	9/29/97
HEEA	S753	BO105S	250C20B		6898735	6886407	TURBINE		HEEA0011099
	ENGINE REMOVED DUE TO LOW POWER. UPON INSPECTION OF TURBINE PARTS NOTED: MINOR SULPHIDATION ON ALL #1 WHEEL BLADES. SCRAPPED WHEEL.								
7322	4975V	CESSNA	LYC		FACET	CARBURETOR	STOP WORN		9/19/97
	172RG0440	172RG	O360F1A6			HA6	MIXTURE		97ZZZX4262
	FULL THROTTLE STOP WORN CAUSING A LEAN MIXTURE. WHEN THE PART IS FULL RICH WITH THE SCREW TYPE MIX CONTROL, PRESSURE IS PUT ON THE FULL RICH STOP. STOP IS BEHIND A COVER PLATE WHICH HAMPERS VISABILITY. WEAR CAUSES THE METER HOLE ON MIXTURE TO OVER-CENTER CAUSING A MORE LEAN MIXTURE.								
8530		CESSNA	CONT			VALVE	STUCK	3780	9/1/97
		172	O300A				ENGINE EXHAUST		97ZZZX4303
	ENGINE FOUND WITH EXHAUST VALVE STICKING OPEN. AIRCRAFT HAD BEEN RUN ON AUTO GAS. SMOH: 925 HOURS.								
7322	952CC	CESSNA	CONT			CARBURETOR	NOT MARKED		9/2/97
	18263638	182P	O470R			MA45	SERIAL NUMBER		97ZZZX4266
	CARBURETORS BEING PRODUCED BY PRECISION AIRMOTIVE ARE NOT IN C/W MARVEL-SCHEBELER AD 63-22-03. THE LETTER 'V' IS NOT STAMPED UNDER THE SERIAL NUMBER. SUBMITTER STATED REQUIRE PRECISION AIRMOTIVE TO RECERTIFY ALL CARBURETORS THEY HAVE PRODUCED THIS WAY OR REVISE AD 63-22-03 TO REFLECT THE CURRENT MANUFACTURING PROCESS.								
7322	953CC	CESSNA	CONT			CARBURETOR	NOT MARKED		9/2/97
	18264109	182P	O470R			MA45	SERIAL NUMBER		97ZZZX4267
	CARBURETORS BEING PRODUCED BY PRECISION AIRMOTIVE ARE NOT IN COMPLIANCE WITH MARVEL-SCHEBELER AD 63-22-03. THE LETTER 'V' IS NOT STAMPED UNDER THE SERIAL NUMBER. SUBMITTER STATED REQUIRE PRECISION AIRMOTIVE TO RECTIFY ALL CARBURETORS THEY HAVE PRODUCED THIS WAY OR REVISE AD 63-22-03 TO REFLECT THE CURRENT MANUFACTURING PROCESS.								
8530		CESSNA	CONT			SPRING	BROKEN	180	9/17/97
		T310R	TSIO520B			637837	NR 3 CYL EXH VLV		97ZZZX4248
	ENGINE RUNNING ROUGH. EXHAUST VALVE LEAKING ON COMPRESSION TEST. FOUND OUTER SPRING BROKEN 180 HOURS S.F.R.								
8520	4162G	CESSNA	CONT			CONNECTING ROD	BROKEN	2314	9/9/97
VTTA	421C0426	421C	GTSIO520L			632043	NR 6 CYLINDER	1062	97ZZZX4326
	ENGIEN FAILED EXPLOSIVELY WITH NO PRIOR INDICATIONS NOTED IN MAP, OIL TEMP, OR OIL PRESSURE. ENGINE DISASSEMBLED. INDICATIONS SHOW THAT POSSIBLY THE NR 6 CYLINDER CONNECTING ROD MAY HAVE BROKE CAUSING THE CASE TO BREAK AND COME APART.								

******* DENOTES SIGNIFICANT OCCURRENCE**

ATA / OPER	REG. NO / SERIAL NO	ACFT MAKE / ACFT MODEL	ENG MAKE / ENG MDL	PROP MAKE / PROP MDL	COMP MFG / COMP MDL	PART NAME / PART NUMBER	PART COND / PART LOC.	TT / TSO	DIFF. DATE / OPER CONT NO
7260	787BA	CESSNA	PWA			BEVEL GEAR	FRACTURED	5014	7/22/97
APJR	5000143	500CESSNA	JT15D1		3020694	3020692	GEARBOX	3254	97ZZZX4287

THE ACCESSORY GEARBOX MAIN DRIVESHAFT HAD FRACTURED. THE REPORTED IN-FLIGHT SHUTDOWN WAS A RESULT FROM FRACTURE OF THE ACCESSORY GEARBOX MAIN SHAFT DRIVE BEVEL GEAR DUE TO FATIGUE INITIATING AT A GEAR TOOTH RADIUS. THE FRACTURED GEAR CAUSED MECHANICAL DAMAGE TO ITS MATING INPUT GEAR TEETH AND GOUGED BOTH THE GEARBOX HOUSING AND ITS COVER. TO ALLEVIATE THIS CONDITION, A GEAR FEATURING AN INCREASED MATERIAL THICKNESS AT THE GEAR WEB WAS INTRODUCED INITIALLY BY SB 7152 (2-80), SUPERSEDED BY SB 7258 (6-87), THEN BY SB 7269 (3-88) FEATURING GEARS MANUFACTURED FROM SUPERIOR MATERIAL AND ACCOMMODATING LARGER BACK LASH.

7260	333CA	GULSTM	GARRTT			SHAFT	SHEARED	4719	9/1/97
	11136	690A	TPE331S			31017261	TORQUE SENSOR		97ZZZX4308

WITH AIRCRAFT AT 4,000 FEET WHILE BEING VECTORED FOR LANDING, LEFT ENGINE FAILED. PILOT COMPLETED ENGINE SHUT DOWN. UNEVENTFUL LANDING MADE. MAINTENANCE FOUND TORQUE SENSOR SHAFT HAD SHEARED. THIS GEAR ALSO DRIVES THE OIL SCAVENGE PUMP AND THE FUEL PUMP; THUS, WHEN THE ENGINE LOST FUEL PRESSURE, THE ENGINE FLAMED OUT. TORQUE SENSOR REPLACED WITH NEW STYLE 3101726-3.

8530		PIPER	LYC			VALVE	STICKING	2200	9/1/97
		PA20135	O290D2				ENGINE EXHAUST		97ZZZX4305

FOUND ENGINE EXHAUST VALVE STICKING. AIRCRAFT HAD BEEN OPERATED ON AVIA GAS. VALVE REQUIRED DISSASSEMBLY, CLEANING, AND LAPPING IN. SMOH: 525 HOURS.

7414	40200	PIPER	LYC			BEARING	FAILED	1618	8/11/97
	277304997	PA23250	IO540C4B5			67542	LT MAG DRIVE		97ZZZX4300

FOUND LEFT MAGNETO DRIVE BEARING ASSEMBLY COMING APART. BEARING ASSEMBLY WAS WEARING INTO GEAR RETAINER ASSEMBLY PN LW-19096. SUBMITTER STATES INSPECTION OF THESE PARTS SHOULD BE ACCOMPLISHED EACH TIME MAGNETO IS REMOVED.

8530	9083D	PIPER	LYC			PIN PLUG	FAILED		9/19/97
	288690050	PA28181	O360A4M			60828	PISTON		97ZZZX4265

PISTON PIN PLUG FAILURE DUE TO PISTON PIN MIGRATION FORCING THE PLUG TO THE BARREL WALL. UPON ZERO COMPRESSION CHECK, REMOVED CYLINDER AND PLUG WAS FOUND IN A SMALL BALL RIDING WITHIN THE PISTON PIN. BOTH COMPRESSION RINGS AND OIL CONTROL RING DAMAGED ALONG WITH CAM AND CAM FOLLOWER.

7414	4301C	PIPER	LYC	BENDIX		DISTRIBUTOR BLK	WORN		9/22/97
FFSA	318353001	PA31350	LTIO540J2BD	103493104		10391586	MAGNETO	94	97ZZZX4254

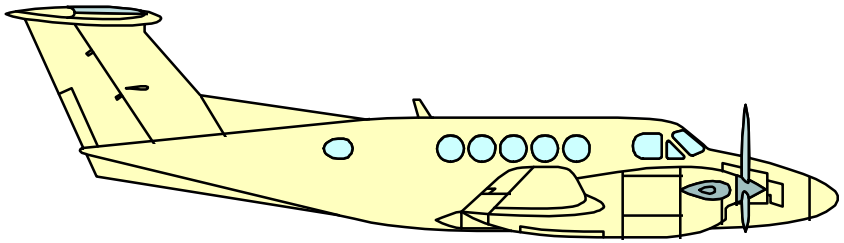
WORN OR LOOSE BEARING IN DISTRIBUTOR BLOCK ALLOWED DISTRIBUTOR GEAR ASSEMBLY TO JUMP TEETH AND GET OUT OF TIME WITH ROTOR.

8530	415C	UNIVAR	CONT			VALVE	STUCK	2875	9/1/97
		415C	C7512				ENGINE EXHAUST		97ZZZX4304

FOUND ENGINE EXHAUST VALVE STUCK. AIRCRAFT HAD BEEN RUN ON AUTO GAS. SMOH: 625 HOURS.

INTERNATIONAL

SERVICE DIFFICULTY REPORT



INTERNATIONAL SERVICE DIFFICULTY REPORT SUMMARY - AIRCRAFT

10/5/97 TO 10/11/97 ISSUE 97-41 ZAC-327

ATA	REG. NO	ACFT MAKE	ENG MAKE	PROP MAKE	COMP MFG	PART NAME	PART COND	TT	DIFF. DATE
OPER	SERIAL NO	ACFT MODEL	ENG MDL	PROP MDL	COMP MDL	PART NUMBER	PART LOC.	TSO	OPER CONT NO
								#Error	
								#Error	
	#Error								

******* DENOTES SIGNIFICANT OCCURRENCE**

INTERNATIONAL SERVICE DIFFICULTY REPORT - HELICOPTERS

ATA	REG. NO	ACFT MAKE	ENG MAKE	PROP MAKE	COMP MFG	PART NAME	PART COND	TT	DIFF. DATE
OPER	SERIAL NO	ACFT MODEL	ENG MDL	PROP MDL	COMP MDL	PART NUMBER	PART LOC.	TSO	OPER CONT NO
								#Error	
								#Error	
	#Error								

******* DENOTES SIGNIFICANT OCCURRENCE**

ATA OPER	REG. NO SERIAL NO	ACFT MAKE ACFT MODEL	ENG MAKE ENG MDL	PROP MAKE PROP MDL	COMP MFG COMP MDL	PART NAME PART NUMBER	PART COND PART LOC.	TT TSO	DIFF. DATE OPER CONT NO
7414		DHAV	PWA		BOSCH	BEARING	WORN		7/16/97
		DHC2MK1	R985AN14B		SB9RU3		MAG ROTOR SHAFT	276	CA970728015
	(CAN) ENGINE RUNNING ROUGH AND BACKFIRING. INVESTIGATION FOUND THE MAGNETO ROTOR SHAFT BEARING WORN RESULTING IN THE BREAKER POINTS MOVING OUT OF TOLERANCE.								
7210		DHAV	PWA			TRANSFER SLEEVE	SCORED	1235	7/13/97
		DHC6100	PT6A20			3011527	RED GR BOX		CA970728003
	(CAN) DURING INSEPECTION OF THE REDUCTION GEAR NOSE CASE CHIP DETECTOR AND OIL SCREENS, SUBSTANTIAL AMOUNTS OF METAL PARTICLES WERE FOUND. THE ENGINE WAS REMOVED AND SENT FOR INSPECTION AND REPAIR. DISASSEMBLY REVEALED THE PROPELLER SHAFT TRANSFER SLEEVE HAD SEIZED ON THE PROPELLER SHAFT. NO OTHER DAMAGE WAS DETECTED. THE REPAIR AND INSPECTION WAS COMPLETED AND THE ENGINE WAS RETURNED TO SERVICE.								

U.S. Department
of Transportation
Federal Aviation Administration

SERVICE DIFFICULTY REPORT SUMMARY

GENERAL AVIATION - INDEX

The following information provides a tally of the Service Difficulty Reports (SDR's) contained in this weeks issue of the General Aviation SDR Summary. The totals represent only a summation of the SDR's that were submitted to the FAA, Aviation Data Systems Branch, AFS-620, and processed in time for inclusion in the Summary. The first table is a tally of the number of SDR's submitted through the indicated Flight Standards District Office (FSDO). The second table sorts the SDR's by the aircraft or equipment make and model. The heading at the top of each table provides a two digit Joint Aircraft System/Component (JASC) code grouping (e.g., JASC codes 1100 thru 1800 are represented by the heading labeled 11-18) which categorizes in general, the problem areas for each reported discrepancy.

The Flight Standards Service Difficulty Program objective is to achieve prompt and appropriate correction of conditions adversely affecting continued airworthiness of aeronautical products. This is accomplished by the collection of Service Difficulty and Malfunction or Defect Reports. SDR's are consolidation and collation into common data base where they are analyzed for trends, problems, and alert information. This information is then disseminated to the appropriate segments of the aviation community and to other FAA offices.

The number of SDR's submitted is not an indicator of the mechanical reliability or fitness of an air carrier's aircraft fleet and should not be used as such. The air carriers certificate holding office has the primary responsibility for planning, programming evaluations, and assessing the performance of operators. Questions regarding an air carrier's fleet performance should be directed to the appropriate Flight Standards District Office, Certificate Management Office, or Certificate Management Unit.

GENERAL AVIATION SUMMARY INDEX BY DISTRICT OFFICE

DISTRICT OFFICE	SDR TOTALS BY FAA ATA SYSTEM CHAPTER								
	11-18	21-29	30-38	45-49	51-57	61-67	71-79	80-85	TOTAL
AL 01	0	0	0	0	0	0	1	0	1
CA	0	0	0	0	0	2	2	0	4
CE 03	0	1	0	0	1	0	1	0	3
EA 07	0	0	0	0	0	0	0	1	1
EA 11	0	0	0	0	0	0	1	0	1
EA 21	0	0	0	0	1	0	0	0	1
EA 23	0	0	0	0	0	0	1	0	1
GL 13	0	2	0	0	0	0	0	0	2
GL 19	0	0	0	0	1	1	0	0	2
GL 21	0	0	0	0	0	0	0	1	1
GL 23	0	1	0	0	0	0	2	0	3
NE 01	0	0	1	0	0	0	0	0	1
NE 03	0	0	0	0	0	0	0	1	1
NE 05	0	0	1	0	0	0	0	0	1
NM 11	0	0	2	0	2	0	0	0	4
NM 13	0	0	0	0	0	0	1	0	1
SO 05	0	1	0	0	0	0	0	0	1
SO 09	0	0	1	0	0	0	0	0	1
SO 11	0	1	0	0	0	0	0	0	1
SO 13	0	1	0	0	0	0	0	0	1
SO 15	0	1	0	0	0	0	0	0	1
SO 16	0	0	0	0	1	0	0	0	1
SO 17	0	0	0	0	0	1	0	0	1
SW 03	0	3	0	0	5	5	3	0	16
SW 11	0	0	0	0	1	0	0	0	1
SW 13	0	1	0	0	0	0	0	0	1

DISTRICT OFFICE	SDR TOTALS BY FAA ATA SYSTEM CHAPTER								
	11-18	21-29	30-38	45-49	51-57	61-67	71-79	80-85	TOTAL
SW 17	0	3	2	0	0	1	0	3	9
SW 99	0	1	1	0	0	0	1	0	3
WP 01	0	0	2	0	0	0	0	0	2
WP 07	0	1	0	0	0	0	0	0	1
WP 19	0	0	0	0	2	0	0	1	3
WP 23	0	2	0	0	0	0	0	0	2
TOTALS	**0**	**19**	**10**	**0**	**14**	**10**	**13**	**7**	**73**

GENERAL AVIATION SUMMARY BY MANUFACT. MAKE AND MODEL

AIRCRAFT MAKE	AIRCRAFT MODEL	SDR TOTALS BY FAA ATA SYSTEM CHAPTER								
		11-18	21-29	30-38	45-49	51-57	61-67	71-79	80-85	TOTAL
AGUSTA	A109K2	0	0	2	0	0	0	0	0	2
AMTR	RANSS7	0	1	0	0	0	0	0	0	1
AMTRDF	KITFOX	0	0	1	0	0	0	0	0	1
BEECH	200BEECH	0	0	1	0	0	0	0	0	1
BEECH	76	0	0	0	0	1	0	0	0	1
BEECH	B200	0	0	0	0	0	1	0	0	1
BEECH	C90	0	1	0	0	0	0	0	0	1
BEECH	E90	0	2	0	0	0	0	0	0	2
BELL	206L1	0	0	0	0	0	1	0	0	1
BELL	206L3	0	0	0	0	0	1	0	0	1
BELL	212	0	0	0	0	1	0	1	0	2
BELL	214ST	0	1	0	0	0	1	0	0	2
BELL	222	0	1	0	0	0	0	0	0	1
BELL	412	0	2	0	0	4	2	0	0	8
BOLKMS	BO105S	0	0	0	0	0	0	2	0	2
CESSNA	172	0	0	0	0	0	0	0	1	1
CESSNA	172M	0	1	1	0	0	0	0	0	2
CESSNA	172RG	0	1	0	0	0	0	1	0	2
CESSNA	182P	0	1	0	0	0	0	2	0	3
CESSNA	208B	0	0	0	0	0	0	1	0	1
CESSNA	402B	0	0	0	0	1	0	0	0	1
CESSNA	402C	0	0	0	0	1	0	0	0	1
CESSNA	414A	0	1	0	0	0	0	0	0	1
CESSNA	421C	0	0	0	0	0	0	0	1	1
CESSNA	500CESSNA	0	0	0	0	0	0	1	0	1
CESSNA	550	0	2	1	0	0	0	0	0	3

AIRCRAFT MAKE	AIRCRAFT MODEL	SDR TOTALS BY FAA ATA SYSTEM CHAPTER								
		11-18	21-29	30-38	45-49	51-57	61-67	71-79	80-85	TOTAL
CESSNA	T310R	0	0	0	0	0	0	0	1	1
CESSNA	U206F	0	2	0	0	0	0	0	0	2
CHILD	S2BPITTS	0	0	0	0	1	0	0	0	1
CONAER	LA4200	0	1	0	0	0	0	0	0	1
DHAV	DHC2MK1	0	0	0	0	0	0	1	0	1
DHAV	DHC6100	0	0	0	0	0	0	1	0	1
DIAMON	DA20A1	0	0	0	0	1	0	0	0	1
GULSTM	690A	0	0	0	0	0	0	1	0	1
MAULE	M5210TC	0	0	0	0	1	0	0	0	1
MOONEY	M20C	0	0	0	0	0	1	0	0	1
PIPER	PA20135	0	0	0	0	0	0	0	1	1
PIPER	PA23250	0	0	0	0	0	0	1	0	1
PIPER	PA24180	0	0	1	0	0	0	0	0	1
PIPER	PA28161	0	0	0	0	1	0	0	0	1
PIPER	PA28181	0	0	0	0	0	0	0	1	1
PIPER	PA31310	0	0	1	0	0	0	0	0	1
PIPER	PA31325	0	1	0	0	0	1	0	0	2
PIPER	PA31350	0	0	0	0	0	0	1	0	1
PIPER	PA31T	0	0	1	0	0	2	0	0	3
PIPER	PA32R300	0	0	1	0	0	0	0	0	1
PIPER	PA46350P	0	0	0	0	0	0	0	1	1
SLNGAV	T67M260	0	1	0	0	0	0	0	0	1
UNIVAR	415C	0	0	0	0	1	0	0	1	2
UNIVAR	415E	0	0	0	0	1	0	0	0	1
	TOTALS	**0**	**19**	**10**	**0**	**14**	**10**	**13**	**7**	**73**

JOINT AIRCRAFT SYSTEM/COMPONENT CODE TABLE

PREFACE

The Joint Aircraft System/Component (JASC) Code Table is a modified version of the Air Transport Association of America (ATA), Specification 100 code. It was developed by the Federal Aviation Administration's (FAA), Aviation Data Systems Branch (AFS-620). Technical support was provided by the Galaxy Scientific Corporation, and various representatives of the air carrier and general aviation community.

Over the past four years, the JASC format of the ATA Spec 100 code has gained widespread industry acceptance. In a harmonized effort, the FAA's counterparts in Australia and Canada have adopted the JASC code with only a few exceptions. Some Canadian aircraft manufacturers have also recently adopted this new stardard.

This code table is constructed by using the new JASC four (4) digit code, along with an abbreviated code title. The abbreviated titles have been modified in some cases to clarify the intended use of the accompanying code. This table can be used as a quick reference chart, to assist in the coding and review of aircraft structures or systems data (i.e., Service Difficulty Report (SDR), Accident/Incident Report).

The current coding scheme used in the JASC code was introduced in May 1991, for the technical classification of SDR's. Its predecessor, the FAA aircraft system/component code, was a similar but more complex eight-digit code which was developed over 25 years ago. It was constructed around the computer technology of that period. It consisted of a four digit numerical code plus a four alpha character code to make data retrieval possible. Since that time, computer technology has advanced many fold. Reducing the code from eight to four characters simplifies coding, and in some cases, makes JASC coding match the ATA Specification 100 first three digits, which are used to identify aircraft systems. The ATA code does not reference the fourth digit, so it is free to be used for identifying components.

The JASC code aircraft structural section has increased due to problems inherent with aging aircraft. As an example, FAA code 5301 SXBD was expanded to 20 items due to the high rate of reporting in this area (8021 structural reports were received in 1989). In some instances, there was very little reporting and codes were combined into other systems if the safety impact was not significant. The overall reduction in codes has been from 568 FAA codes to 488 JASC codes, with the significant increase being in the structural area as stated earlier.

The JASC code divides the engine section into two major code groups to separate the turbine and reciprocating engines. The codes for the turbine engines are in JASC Chapter 72, Turbine/Turboprop Engine. The codes for the reciprocating engines are now exclusively found in JASC Chapter 85, Reciprocating Engine.

The other major deviation from ATA Spec 100 is in ATA section 2730, specifically involves the stall warning system. Early technology (primarily on smaller aircraft) directly linked the sensing of flight attitude to one of the components which furnished the means of manually controlling the flight attitude characteristics (elevator). Today, most large transport category aircraft utilize electronic units to sense the change in the environmental condition called stall, and use the data to influence navigation. ATA section 3410, Flight Environment Data, includes high speed warning in its code definition. Stall warning (low speed) is the reciprocal term of high speed warning, so its filing under the same code appears more logical. Thus, with the JASC code it was decided to move the stall warning system to Chapter 34 under the separate code JASC code 3418, Stall Warning System.

The FAA is continuing to pursue worldwide involvement from operators and manufacturers in addressing the need for international standardization of aircraft system/component codes. The ultimate goal is to develop a universal aircraft/component numbering standard which can be used in the manufacturer's maintenance manual, wiring diagram manual, system manuals and illustrated parts catalog. This harmonized standard must be a usable standard for the aircraft manufacturers, air carrier operators and the general aviation community.

We welcome comments and feedback regarding the possible forming of working groups to achieve this long range consideration of possibly harmonizing the ATA Specification 100 code and the JASC code. Comments may be directed to the FAA, Aviation Data Sytem Branch, AFS-620, P.O. Box 25082, Oklahoma City, OK 73125.

JOINT AIRCRAFT SYSTEM/COMPONENT CODE TABLE

JASC/ TITLE

11 PLACARDS AND MARKINGS

1100 PLACARDS AND MARKINGS

12 SERVICING

1210 FUEL SERVICING
1220 OIL SERVICING
1230 HYDRAULIC FLUID SERVICING
1240 COOLANT SERVICING

18 HELICOPTER VIBRATION

1800 HELICOPTER VIB/NOISE ANALYSIS
1810 HELICOPTER VIBRATION ANALYSIS
1820 HELICOPTER NOISE ANALYSIS

21 AIR CONDITIONING

2100 AIR CONDITIONING SYSTEM
2110 CABIN COMPRESSOR SYSTEM
2120 AIR DISTRIBUTION SYSTEM
2121 AIR DISTRIBUTION FAN
2130 CABIN PRESSURE CONTROL SYSTEM
2131 CABIN PRESSURE CONTROLLER
2132 CABIN PRESSURE INDICATOR
2133 PRESSURE REGUL/OUTFLOW VALVE
2134 CABIN PRESSURE SENSOR
2140 HEATING SYSTEM
2150 CABIN COOLING SYSTEM
2160 CABIN TEMPERATURE CONTROL SYSTEM
2161 CABIN TEMPERATURE CONTROLLER
2162 CABIN TEMPERATURE INDICATOR
2163 CABIN TEMPERATURE SENSOR
2170 HUMIDITY CONTROL SYSTEM

22 AUTO FLIGHT

2200 AUTO FLIGHT SYSTEM
2210 AUTOPILOT SYSTEM
2211 AUTOPILOT COMPUTER
2212 ALTITUDE CONTROLLER
2213 FLIGHT CONTROLLER
2214 AUTOPILOT TRIM INDICATOR
2215 AUTOPILOT MAIN SERVO
2216 AUTOPILOT TRIM SERVO
2220 SPEED-ATTITUDE CORRECT. SYSTEM
2230 AUTO THROTTLE SYSTEM
2250 AERODYNAMIC LOAD ALLEVIATING

23 COMMUNICATIONS

2300 COMMUNICATIONS SYSTEM
2310 HF COMMUNICATION SYSTEM
2311 UHF COMMUNICATION SYSTEM
2312 VHF COMMUNICATION SYSTEM
2320 DATA TRANSMISSION AUTO CALL
2330 ENTERTAINMENT SYSTEM
2340 INTERPHONE & PA SYSTEM
2350 AUDIO INTEGRATING SYSTEM
2360 STATIC DISCHARGE SYSTEM
2370 AUDIO/VIDEO MONITORING

24 ELECTRICAL POWER

2400 ELECTRICAL POWER SYSTEM
2410 ALTERNATOR-GENERATOR DRIVE
2420 AC GENERATION SYSTEM
2421 AC GENERATOR-ALTERNATOR
2422 AC INVERTER
2423 PHASE ADAPTER

24 ELECTRICAL POWER CONT'D

2424 AC REGULATOR
2425 AC INDICATING SYSTEM
2430 DC GENERATING SYSTEM
2431 BATTERY OVERHEAT WARN. SYSTEM
2432 BATTERY/CHARGER SYSTEM
2433 DC RECTIFIER-CONVERTER
2434 DC GENERATOR-ALTERNATOR
2435 STARTER-GENERATOR
2436 DC REGULATOR
2437 DC INDICATING SYSTEM
2440 EXTERNAL POWER SYSTEM
2450 AC POWER DISTRIBUTION SYSTEM
2460 DC POWER/DISTRIBUTION SYSTEM

25 EQUIPMENT/FURNISHINGS

2500 CABIN EQUIPMENT/FURNISHINGS
2510 FLIGHT COMPARTMENT EQUIPMENT
2520 PASSENGER COMPARTMENT EQUIPMENT
2530 BUFFET/GALLEYS
2540 LAVATORIES
2550 CARGO COMPARTMENTS
2551 AGRICULTURAL SPRAY SYSTEM
2560 EMERGENCY EQUIPMENT
2561 LIFE JACKET
2562 EMERGENCY LOCATOR BEACON
2563 PARACHUTE
2564 LIFE RAFT
2565 ESCAPE SLIDE
2570 ACCESSORY COMPARTMENT
2571 BATTERY BOX STRUCTURE
2572 ELECTRONIC SHELF SECTION

26 FIRE PROTECTION

2600 FIRE PROTECTION SYSTEM
2610 DETECTION SYSTEM
2611 SMOKE DETECTION
2612 FIRE DETECTION
2613 OVERHEAT DETECTION
2620 EXTINGUISHING SYSTEM
2621 FIRE BOTTLE, FIXED
2622 FIRE BOTTLE, PORTABLE

27 FLIGHT CONTROLS

2700 FLIGHT CONTROL SYSTEM
2701 CONTROL COLUMN SECTION
2710 AILERON CONTROL SYSTEM
2711 AILERON TAB CONTROL SYSTEM
2720 RUDDER CONTROL SYSTEM
2721 RUDDER TAB CONTROL SYSTEM
2722 RUDDER ACTUATOR
2730 ELEVATOR CONTROL SYSTEM
2731 ELEVATOR TAB CONTROL SYSTEM
2740 STABILIZER CONTROL SYSTEM
2741 STABILIZER POSITION INDICATING
2742 STABILIZER ACTUATOR
2750 TE FLAP CONTROL SYSTEM
2751 TE FLAP POSITION IND. SYSTEM
2752 TE FLAP ACTUATOR
2760 DRAG CONTROL SYSTEM
2761 DRAG CONTROL ACTUATOR
2770 GUST LOCK/DAMPER SYSTEM
2780 LE FLAP CONTROL SYSTEM
2781 LE FLAP POSITION IND. SYSTEM
2782 LE FLAP ACTUATOR

28 FUEL

2800 AIRCRAFT FUEL SYSTEM
2810 FUEL STORAGE
2820 ACFT FUEL DISTRIB. SYSTEM
2821 ACFT FUEL FILTER/STRAINER
2822 FUEL BOOST PUMP
2823 FUEL SELECTOR/SHUTOFF VALVE
2824 FUEL TRANSFER VALVE
2830 FUEL DUMP SYSTEM
2840 ACFT FUEL INDICATING
2841 FUEL QUANTITY INDICATOR
2842 FUEL QUANTITY SENSOR
2843 FUEL TEMPERATURE INDICATING
2844 FUEL PRESSURE INDICATOR

29 HYDRAULIC POWER

2900 HYDRAULIC POWER SYSTEM
2910 HYDRAULIC, MAIN SYSTEM
2911 HYDRAULIC POWER-ACCUMULATOR-MAIN
2912 HYDRAULIC FILTER-MAIN SYSTEM
2913 HYDRAULIC PUMP. ELECT-ENG.-MAIN
2914 HYDRAULIC HANDPUMP-MAIN
2915 HYDRAULIC PRESSURE RELIEF VLV-MAIN
2916 HYDRAULIC RESERVOIR-MAIN
2917 HYDRAULIC PRESSURE REGULATOR-MAIN
2920 HYDRAULIC, AUXILIARY SYSTEM
2921 HYDRAULIC ACCUMULATOR-AUXILIARY
2922 HYDRAULIC FILTER-AUXILIARY
2923 HYDRAULIC PUMP-AUXILIARY
2925 HYDRAULIC PRESSURE RELIEF-AUXILIARY
2926 HYDRAULIC RESERVOIR-AUXILIARY
2927 HYDRAULIC PRESSURE REGULATOR-AUX.
2930 HYDRAULIC SYSTEM INDICATING
2931 HYDRAULIC PRESSURE INDICATOR
2932 HYDRAULIC PRESSURE SENSOR
2933 HYDRAULIC QUANTITY INDICATOR
2934 HYDRAULIC QUANTITY SENSOR

30 ICE AND RAIN PROTECTION

3000 ICE/RAIN PROTECTION SYSTEM
3010 AIRFOIL ANTI/DE-ICE SYSTEM
3020 AIR INTAKE ANTI/DE-ICE SYSTEM
3030 PITOT/STATIC ANTI-ICE SYSTEM
3040 WINDSHIELD/DOOR RAIN/ICE REMOVAL
3050 ANTENNA/RADOME ANTI-ICE/DE-ICE SYSTEM
3060 PROP/ROTOR ANTI-ICE/DE-ICE SYSTEM
3070 WATER LINE ANTI-ICE SYSTEM
3080 ICE DETECTION

31 INSTRUMENTS

3100 INDICATING/RECORDING SYSTEM
3110 INSTRUMENT PANEL
3120 INDEPENDENT INSTRUMENTS (CLOCK, ETC.)
3130 DATA RECORDERS (FLT/MAINT)
3140 CENTRAL COMPUTERS (EICAS)
3150 CENTRAL WARNING
3160 CENTRAL DISPLAY
3170 AUTOMATIC DATA

32 LANDING GEAR

3200 LANDING GEAR SYSTEM
3201 LANDING GEAR/WHEEL FAIRING
3210 MAIN LANDING GEAR
3211 MAIN LANDING GEAR ATTACH SECTION
3212 EMERGENCY FLOTATION SECTION
3213 MAIN LANDING GEAR STRUT/AXLE/TRUCK
3220 NOSE/TAIL LANDING GEAR
3221 NOSE/TAIL LANDING GEAR ATTACH SECTION
3222 NOSE/TAIL LANDING GEAR STRUT/AXLE
3230 LANDING GEAR RETRACT/EXT. SYSTEM
3231 LANDING GEAR DOOR RETRACT SECTION
3232 LANDING GEAR DOOR ACTUATOR
3233 LANDING GEAR ACTUATOR
3234 LANDING GEAR SELECTOR
3240 LANDING GEAR BRAKE SYSTEM
3241 BRAKE ANTI-SKID SECTION
3242 BRAKE
3243 MASTER CYL/BRAKE VALVE
3244 TIRE
3245 TIRE TUBE
3246 WHEEL/SKI/FLOAT
3250 LANDING GEAR STEERING SYSTEM
3251 STEERING UNIT
3252 SHIMMY DAMPER
3260 LANDING GEAR POSITION & WARNING
3270 AUXILIARY GEAR (TAIL SKID)

33 LIGHTS

3300 LIGHTING SYSTEM
3310 FLIGHT COMPARTMENT LIGHTING
3320 PASSENGER COMPARTMENT LIGHTING
3330 CARGO COMPARTMENT LIGHTING
3340 EXTERIOR LIGHTING
3350 EMERGENCY LIGHTING

34 NAVIGATION

3400 NAVIGATION SYSTEM
3410 FLIGHT ENVIRONMENT DATA
3411 PITOT/STATIC SYSTEM
3412 OUTSIDE AIR TEMP. IND./SENSOR
3413 RATE OF CLIMB INDICATOR
3414 AIRSPEED/MACH INDICATING
3415 HIGH SPEED WARNING
3416 ALTIMETER, BAROMETRIC/ENCODER

34 NAVIGATION CONT'D

3417 AIR DATA COMPUTER
3418 STALL WARNING SYSTEM
3420 ATTITUDE AND DIRECTION DATA SYSTEM
3421 ATTITUDE GYRO & IND. SYSTEM
3422 DIRECTIONAL GYRO & IND. SYSTEM
3423 MAGNETIC COMPASS
3424 TURN & BANK/RATE OF TURN INDICATOR
3425 INTEGRATED FLT. DIRECTOR SYSTEM
3430 LANDING & TAXI AIDS
3431 LOCALIZER/VOR SYSTEM
3432 GLIDE SLOPE SYSTEM
3433 MICROWAVE LANDING SYSTEM
3434 MARKER BEACON SYSTEM
3435 HEADS UP DISPLAY SYSTEM
3436 WIND SHEAR DETECTION SYSTEM
3440 INDEPENDENT POS. DETERMINING SYSTEM
3441 INERTIAL GUIDANCE SYSTEM
3442 WEATHER RADAR SYSTEM
3443 DOPPLER SYSTEM
3444 GROUND PROXIMITY SYSTEM
3445 AIR COLLISION AVOIDANCE SYSTEM (TCAS)
3446 NON RADAR WEATHER SYSTEM
3450 DEPENDENT POSITION DETERMINING SYSTEM
3451 DME/TACAN SYSTEM
3452 ATC TRANSPONDER SYSTEM
3453 LORAN SYSTEM
3454 VOR SYSTEM
3455 ADF SYSTEM
3456 OMEGA NAVIGATION SYSTEM
3457 GLOBAL POSITIONING SYSTEM
3460 FLIGHT MANAGE. COMPUTING SYSTEM

35 OXYGEN

3500 OXYGEN SYSTEM
3510 CREW OXYGEN SYSTEM
3520 PASSENGER OXYGEN SYSTEM
3530 PORTABLE OXYGEN SYSTEM

36 PNEUMATIC

3600 PNEUMATIC SYSTEM
3610 PNEUMATIC DISTRIBUTION SYSTEM
3620 PNEUMATIC INDICATING SYSTEM

37 VACUUM

3700 VACUUM SYSTEM
3710 VACUUM DISTRIBUTION SYSTEM
3720 VACUUM INDICATING SYSTEM

38 WATER/WASTE

3800 WATER & WASTE SYSTEM
3810 POTABLE WATER SYSTEM
3820 WASH WATER SYSTEM
3830 WASTE DISPOSAL SYSTEM
3840 AIR SUPPLY (WATER PRESS. SYSTEM)

45 CENTRAL MAINT. SYSTEM

4500 CENTRAL MAINT. COMPUTER

49 AIRBORNE AUXILIARY POWER

4900 AIRBORNE APU SYSTEM
4910 APU COWLING/CONTAINMENT
4920 APU CORE ENGINE
4930 APU ENGINE FUEL & CONTROL
4940 APU START/IGNITION SYSTEM
4950 APU BLEED AIR SYSTEM
4960 APU CONTROLS
4970 APU INDICATING SYSTEM
4980 APU EXHAUST SYSTEM
4990 APU OIL SYSTEM

51 STANDARD PRACTICES/STRUCTURES

5100 STANDARD PRACTICES/STRUCTURES
5101 AIRCRAFT STRUCTURES
5102 BALLOON REPORTS

52 DOORS

5200 DOORS
5210 PASSENGER/CREW DOORS
5220 EMERGENCY EXIT
5230 CARGO/BAGGAGE DOORS
5240 SERVICE DOORS
5241 GALLEY DOORS
5242 E/E COMPARTMENT DOORS
5243 HYDRAULIC COMPARTMENT DOORS
5244 ACCESSORY COMPARTMENT DOORS
5245 AIR CONDITIONING COMPART. DOORS
5246 FLUID SERVICE DOORS
5247 APU DOORS
5248 TAIL CONE DOORS
5250 FIXED INNER DOORS
5260 ENTRANCE STAIRS
5270 DOOR WARNING SYSTEM
5280 LANDING GEAR DOORS

53 FUSELAGE

5300 FUSELAGE STRUCTURE (GENERAL)
5301 AERIAL TOW EQUIPMENT
5302 ROTORCRAFT TAIL BOOM
5310 FUSELAGE MAIN STRUCTURE
5311 FUSELAGE MAIN FRAME
5312 FUSELAGE MAIN BULKHEAD
5313 FUSELAGE MAIN LONGERON/STRINGER
5314 FUSELAGE MAIN KEEL
5315 FUSELAGE MAIN FLOOR BEAM
5320 FUSELAGE MISCELLANEOUS STRUCTURE
5321 FUSELAGE FLOOR PANEL
5322 FUSELAGE INTERNAL MOUNT STRUCTURE
5323 FUSELAGE INTERNAL STAIRS
5324 FUSELAGE FIXED PARTITIONS
5330 FUSELAGE MAIN PLATE/SKIN
5340 FUSELAGE MAIN ATTACH FITTINGS
5341 WING ATTACH FITTINGS (ON FUSELAGE)
5342 STABILIZER ATTACH FITTINGS
5343 LANDING GEAR ATTACH FITTINGS
5344 FUSELAGE DOOR HINGES
5345 FUSELAGE EQUIPMENT ATTACH FITTINGS
5346 POWERPLANT ATTACH FITTINGS
5347 SEAT/CARGO ATTACH FITTINGS
5350 FUSELAGE AERODYNAMIC FAIRINGS

54 NACELLES/PYLONS

5400 NACELLE/PYLON STRUCTURE
5410 MAIN FRAME (ON NACELLE/PYLON)
5411 FRAME/SPAR/RIB(NACELLE/PYLON)
5412 BULKHEAD/FIREWALL (NAC/PYLON)
5413 LONGERON/STRINGER (NAC/PYLON)
5414 PLATE SKIN (NAC/PYLONS)
5415 ATTACH FITTINGS (NAC/PYLON)

55 STABILIZERS

5500 EMPENNAGE STRUCTURE
5510 HORIZONTAL STABILIZER STRUCTURE
5511 HORIZONTAL STABILIZER SPAR/RIB
5512 HORIZONTAL STABILIZER PLATE/SKIN
5513 HORIZONTAL STABILIZER TAB STRUCTURE
5520 ELEVATOR STRUCTURE

55 STABILIZERS CONT'D

5521 ELEVATOR SPAR/RIB STRUCTURE
5522 ELEVATOR PLATES/SKIN STRUCTURE
5523 ELEVATOR TAB STRUCTURE
5530 VERTICAL STABILIZER STRUCTURE
5531 VERTICAL STABILIZER SPAR/RIB STRUCTURE
5532 VERTICAL STABILIZER PLATES/SKIN
5533 VENTRAL STRUCTURE (ON VERT. STAB)
5540 RUDDER STRUCTURE
5541 RUDDER SPAR/RIB STRUCTURE
5542 RUDDER PLATE/SKIN STRUCTURE
5543 RUDDER TAB STRUCTURE
5550 EMPENNAGE FLT. CONT. ATTACH FITTING
5551 HORIZONTAL STABILIZER ATTACH FITTING
5552 ELEVATOR/TAB ATTACH FITTINGS
5553 VERT. STAB. ATTACH FITTINGS
5554 RUDDER/TAB ATTACH FITTINGS

56 WINDOWS

5600 WINDOW/WINDSHIELD SYSTEM
5610 FLIGHT COMPARTMENT WINDOWS
5620 PASSENGER COMPARTMENT WINDOWS
5630 DOOR WINDOWS
5640 INSPECTION WINDOWS

57 WINGS

5700 WING STRUCTURE
5710 WING MAIN FRAME STRUCTURE
5711 WING SPAR STRUCTURE
5712 WING RIB STRUCTURE
5713 WING LONGERON/STRINGER
5714 WING CENTER BOX
5720 WING MISCELLANEOUS STRUCTURE
5730 WING PLATES/SKINS
5740 WING ATTACH FITTINGS
5741 WING, FUSELAGE ATTACH FITTINGS
5742 WING, NAC/PYLON ATTACH FITTINGS
5743 WING, LANDING GEAR ATTACH FITTINGS
5744 CONTROL SURFACE ATTACH FITTINGS
5750 WING CONTROL SURFACE STRUCTURE
5751 AILERON STRUCTURE
5752 AILERON TAB STRUCTURE
5753 TE FLAP STRUCTURE
5754 LEADING EDGE DEVICE STRUCTURE
5755 SPOILER STRUCTURE

61 PROPELLERS/PROPULSORS

6100 PROPELLER SYSTEM
6110 PROPELLER ASSEMBLY
6111 PROPELLER BLADE SECTION
6112 PROPELLER DE-ICE BOOT SECTION
6113 PROPELLER SPINNER SECTION
6114 PROPELLER HUB SECTION
6120 PROPELLER CONTROL SYSTEM
6121 PROPELLER SYNCHRONIZER SECTION
6122 PROPELLER GOVERNOR
6123 PROPELLER FEATHERING/REVERSING
6130 PROPELLER BRAKING
6140 PROPELLER INDICATING SYSTEM

62 MAIN ROTOR

6200 MAIN ROTOR SYSTEM
6210 MAIN ROTOR BLADES
6220 MAIN ROTOR HEAD
6230 MAIN ROTOR MAST/SWASHPLATE
6240 MAIN ROTOR INDICATING SYSTEM

63 MAIN ROTOR DRIVE

6300 MAIN ROTOR DRIVE SYSTEM
6310 ENGINE/TRANSMISSION COUPLING
6320 MAIN ROTOR GEARBOX
6321 MAIN ROTOR BRAKE
6322 ROTORCRAFT COOLING FAN SYSTEM
6330 MAIN ROTOR TRANSMISSION MOUNT
6340 ROTOR DRIVE INDICATING SYSTEM

64 TAIL ROTOR

6400 TAIL ROTOR SYSTEM
6410 TAIL ROTOR BLADE
6420 TAIL ROTOR HEAD
6440 TAIL ROTOR INDICATING SYSTEM

65 TAIL ROTOR DRIVE

6500 TAIL ROTOR DRIVE SYSTEM
6510 TAIL ROTOR DRIVE SHAFT
6520 TAIL ROTOR GEARBOX
6540 TAIL ROTOR DRIVE INDICATING SYSTEM

67 ROTORS FLIGHT CONTROL

6700 ROTORCRAFT FLIGHT CONTROL
6710 MAIN ROTOR CONTROL
6711 TILT ROTOR FLIGHT CONTROL
6720 TAIL ROTOR CONTROL SYSTEM
6730 ROTORCRAFT SERVO SYSTEM

71 POWERPLANT

7100 POWERPLANT SYSTEM
7110 ENGINE COWLING SYSTEM
7111 COWL FLAP SYSTEM
7112 ENGINE AIR BAFFLE SECTION
7120 ENGINE MOUNT SECTION
7130 ENGINE FIRESEALS
7160 ENGINE AIR INTAKE SYSTEM
7170 ENGINE DRAINS

72 TURBINE/TURBOPROP ENGINE

7200 ENGINE (TURBINE/TURBOPROP)
7210 TURBINE ENGINE REDUCTION GEAR
7220 TURBINE ENGINE AIR INLET SECTION
7230 TURBINE ENGINE COMPRESSOR SECTION
7240 TURBINE ENGINE COMBUSTION SECTION
7250 TURBINE SECTION
7260 TURBINE ENGINE ACCESSORY DRIVE
7261 TURBINE ENGINE OIL SYSTEM
7270 TURBINE ENGINE BYPASS SECTION

73 ENGINE FUEL & CONTROL

7300 ENGINE FUEL & CONTROL
7310 ENGINE FUEL DISTRIBUTION
7311 ENGINE FUEL-OIL COOLER
7312 FUEL HEATER
7313 FUEL INJECTOR NOZZLE
7314 ENGINE FUEL PUMP
7320 FUEL CONTROLLING SYSTEM
7321 FUEL CONTROL/ELECTRONIC
7322 FUEL CONTROL/CARBURETOR
7323 TURBINE GOVERNOR
7324 FUEL DIVIDER
7330 ENGINE FUEL INDICATING SYSTEM
7331 FUEL FLOW INDICATING
7332 FUEL PRESSURE INDICATING
7333 FUEL FLOW SENSOR
7334 FUEL PRESSURE SENSOR

74 IGNITION

7400 IGNITION SYSTEM
7410 IGNITION POWER SUPPLY
7411 LOW TENSION COIL
7412 EXCITER
7413 INDUCTION VIBRATOR
7414 MAGNETO/DISTRIBUTOR
7420 IGNITION HARNESS (DISTRIBUTION)
7421 SPARK PLUG/IGNITER
7430 IGNITION SWITCHING

75 AIR

7500 ENGINE BLEED AIR SYSTEM
7510 ENGINE ANTI-ICING SYSTEM
7520 ENGINE COOLING SYSTEM
7530 COMPRESSOR BLEED CONTROL
7531 COMPRESSOR BLEED GOVERNOR
7532 COMPRESSOR BLEED VALVE
7540 BLEED AIR INDICATING SYSTEM

76 ENGINE CONTROLS

7600 ENGINE CONTROLS
7601 ENGINE SYNCHRONIZING
7602 MIXTURE CONTROL
7603 POWER LEVER
7620 ENGINE EMERGENCY SHUTDOWN SYSTEM

77 ENGINE INDICATING

7700 ENGINE INDICATING SYSTEM
7710 POWER INDICATING SYSTEM
7711 ENGINE PRESSURE RATIO (EPR)
7712 ENGINE BMEP/TORQUE INDICATING
7713 MANIFOLD PRESSURE (MP) INDICATING
7714 ENGINE RPM INDICATING SYSTEM
7720 ENGINE TEMP. INDICATING SYSTEM
7721 CYLINDER HEAD TEMP (CHT) INDICATING
7722 ENG. EGT/TIT INDICATING SYSTEM
7730 ENGINE IGNITION ANALYZER SYSTEM
7731 ENGINE IGNITION ANALYZER
7732 ENGINE VIBRATION ANALYZER
7740 ENGINE INTEGRATED INSTRUMENT SYSTEM

78 ENGINE EXHAUST

7800 ENGINE EXHAUST SYSTEM
7810 ENGINE COLLECTOR/TAILPIPE/NOZZLE
7820 ENGINE NOISE SUPPRESSOR
7830 THRUST REVERSER

79 ENGINE OIL

7900 ENGINE OIL SYSTEM (AIRFRAME)
7910 ENGINE OIL STORAGE (AIRFRAME)
7920 ENGINE OIL DISTRIBUTION (AIRFRAME)
7921 ENGINE OIL COOLER
7922 ENGINE OIL TEMP. REGULATOR
7923 OIL SHUTOFF VALVE
7930 ENGINE OIL INDICATING SYSTEM
7931 ENGINE OIL PRESSURE
7932 ENGINE OIL QUANTITY
7933 ENGINE OIL TEMPERATURE

80 STARTING

8000 ENGINE STARTING SYSTEM
8010 ENGINE CRANKING
8011 ENGINE STARTER
8012 ENGINE START VALVES/CONTROLS

81 TURBOCHARGING

8100 EXHAUST TURBINE SYSTEM (RECIP)
8110 POWER RECOVERY TURBINE (RECIP)
8120 EXHAUST TURBOCHARGER

82 WATER INJECTION

8200 WATER INJECTION SYSTEM

83 ACCESSORY GEARBOXES

8300 ACCESSORY GEARBOXES

85 RECIPROCATING ENGINE

8500 ENGINE (RECIPROCATING)
8510 RECIPROCATING ENGINE FRONT SECTION
8520 RECIPROCATING ENGINE POWER SECTION
8530 RECIPROCATING ENGINE CYLINDER SECTION
8540 RECIPROCATING ENGINE REAR SECTION
8550 RECIPROCATING ENGINE OIL SYSTEM

MECHANICS CREED

UPON MY HONOR I swear that I shall hold in sacred trust the rights and privileges conferred upon me as a certified mechanic. Knowing full well that the safety and lives of others are dependent upon my skill and judgment, I shall never knowingly subject others to risks which I would not be willing to assume for myself, or for those dear to me.

IN DISCHARGING this trust, I pledge myself never to undertake work or approve work which I feel to be beyond the limits of my knowledge; nor shall I allow any non-certificated superior to persuade me to approve aircraft or equipment as airworthy against my better judgment; nor shall I permit my judgment to be influenced by money or other personal gain; nor shall I pass as airworthy aircraft or equipment about which I am in doubt, either as a result of direct inspection or uncertainty regarding the ability of others who have worked on it to accomplish their work satisfactorily.

I REALIZE the grave responsibility which is mine as a certified airman, to exercise my judgment on the airworthiness of aircraft and equipment. I, therefore, pledge unyielding adherence to these precepts for the advancement of aviation and for the dignity of my vocation.